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ABSTRACT

This instructor's lesson plan guide on the musculoskeletal system is one of fifteen modules designed for use in the training of emergency medical technicians (paramedics). Five units of study are presented: (1) the major bones, joints, and muscles of the body; (2) patient assessment of a musculoskeletal injury; (3) pathophysiology and management of musculoskeletal injuries (fractures, dislocations, sprains, and strains to various bones and joints); (4) the procedures for the use of the various splinting devices; and (5) clinical experience in the emergency department. Each unit contains these elements: behavioral objectives, teaching procedures, a content outline, demonstration outline, and needed equipment and materials. Skill evaluation sheets are provided. (It is suggested that each module can be presented individually or combined with other modules to construct a course for a selected group of students. CE 017 514 is a course guide for use in planning and implementing the total training program.) (JH)

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National Training Course
EMERGENCY MEDICAL TECHNICIAN
PARAMEDIC
INSTRUCTOR'S LESSON PLANS

Module – IX
Musculoskeletal

CE 017 523

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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U.S. Department of Transportation / *National Highway Traffic Safety Administration*

National Training Course

EMERGENCY MEDICAL TECHNICIAN PARAMEDIC

INSTRUCTOR'S LESSON PLANS

Module – IX

Musculoskeletal

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CE 017 523

HOW TO USE THE INSTRUCTOR LESSON PLANS

NOTES

The *Instructor Lesson Plans* are guides for teaching an advanced-level training program for emergency medical technicians. The *Plans* cannot be used by the instructor to develop the competency to conduct the program; the instructor should have this as a prerequisite to teaching the course.

The *Instructor Lesson Plans* are comprised of 15 modules, each containing the information and instructions needed to conduct a program on a particular subject. Each module can be used by itself or in concert with other modules.

Each module is subdivided into instructional units that deal with a particular segment of the module subject. Generally, the units contain the following components:

- *Performance Objectives.* These are classified as knowledge (K) objectives or skill (S) objectives. They are written in behavioral terms so they can be evaluated either through observation of student activities or through results obtained under specified conditions.
- *Unit Activities.* Reading assignments, reference materials, and outside activities are presented for both the students and the instructor. If the activities are identical, only the instructor's activities are presented.
- *Equipment and Materials.* Educational equipment includes chalkboard, overhead projector, slide projector, and screen. Medical equipment and materials required are drawn from those listed in Appendix F of the *Course Guide*.

- *Content Outline.* This presents the topics to be covered during the presentation of the unit. Where appropriate, it is divided into single skills or concepts. This approach gives the instructor the flexibility to add or delete specific skills and information. The content outline also provides directions to the instructor indicating when the use of demonstrations or group discussions would be most appropriate.

  Because the units are designed to be taught by technically competent instructors, the content outlines are not specific; they only enumerate topics and subtopics. It is expected that the instructor's skill and knowledge will supplement the depth of the course content outline. The instructor is encouraged to prepare additional notes.

- *Demonstration Outlines.* These are designed to present procedural steps that are important in performing the particular skill or calculation. Steps that are critical or that may lead to common errors are emphasized. Where critical steps exist, these outlines suggest what should be demonstrated.
- *Practice Sessions.* These sessions serve as guides to activities to be performed by students applying the skills. They may be performed in the classroom or assigned as homework. During classroom practice sessions, the instructor will be available to observe and correct student performance and to answer any questions.
- *Skill Evaluations.* The skill evaluation sheets provide checkpoints for the instructor to use to insure that students are following appropriate procedures or sequences. Skill evaluation sheets also provide a convenient method for feedback to students having particular problems with a given skill, and for monitoring a student's progress in attaining skill objectives.

  The skill evaluation should occur only after the students have had an opportunity to practice the skill under the supervision of the instructor. The skill evaluation sheets can be distributed during, or before, the demonstration or practice session. Thus, they can be used as a job aid during practice. They should not be used, however, as a job aid while the student is being evaluated. The sheets are designed to provide a learning and evaluation tool

NOTES

and are not intended to mandate performance in the field in a set manner, irrespective of the patient's condition or situation.

Satisfactory performance of a given skill is defined as the correct performance of all steps in the proper sequence. The instructor's judgment is required to define correct performance and sequence of steps in a skill. Skill evaluations may be repeated at intervals throughout the course to assess skill decay and the need for remedial practice. Some instructors may wish to test skills immediately after they have been learned and again at the conclusion of the course.

The alphanumeric coding system is used to identify the various modules and units. When you see, for example, in Module II, **3.6.1.K**, the **3** indicates the unit, the **6** indicates the main instructional topic, the **1** indicates the subsection of the major topic outlined in **3.6**, and the **K** indicates the teaching objective (in this case, knowledge).

To illustrate further, **3.6.1.K** would translate into:

3 = Unit number
6 = The main topic of the instructional section (The first two numbers—e.g., **3.6**—refer to a major heading in the unit content outline.)
1 = A subsection of the major topic outlined in **3.6** (This number relates to the number of objectives listed under skill or knowledge objectives and not to the content outline.)
K = Knowledge objective
S = Skill objective

The three-digit reference numbers (e.g., **3.6.1**) within each module refer to the topical section in that module only. For example, in Module II, any topical heading with **3.6** as the first two digits refers to the discussion of the components of patient assessment in Unit 3.

A visual presentation of Unit 3, by Module II, of the coding system is presented on the following pages.

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SAMPLE PAGE

CODING SYSTEM EXAMPLES

NOTES

- Abdomen
- Extremities

3.6.1.K Given a situation describing a patient with a possible illness or injury who may or may not be able to communicate, the student should be able to describe the procedure for evaluating the patient described. Minimally, the student should include the appropriate primary assessment and specify the order of the four components of the secondary assessment and the areas of the assessment that would be emphasized.

the demonstration, auscultation of the lung, heart, and abdominal sounds.

3.6.1.S Given a student posing as a communicative patient, the student should be able to demonstrate the procedure for conducting a patient assessment when the patient is suspected of having the following:

SAMPLE PAGE

CODING SYSTEM EXAMPLES

NOTES

8. Practice Session 3

3.6. Four components of assessment (order)

A. If the patient can communicate, determine if he has a medical or trauma-related problem.
   1. If a medical problem, the general order should be:
      a. Evaluate the diagnostic and vital signs.
      b. Develop the patient's history.
      c. Examine for a medical problem.

Skill Evaluation 3.6.1.S: Assessment of a Communicative Patient With a Suspected Trauma-Related Problem

Place an "X" in the appropriate column to indicate steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Student posing as a victim
Stethoscope

Clinical Training

NOTES

To present this program, it will be necessary to have access to the clinical units listed below. If a unit is not available, adjustments should be made to insure that the activities proposed for that unit are included in others. Specific guidelines for the clinical units are included in the modules. The student's training should be supervised in each of the following clinical areas:

- Emergency department
- Intensive care unit/coronary care unit
- Operating/recovery room
- Intravenous (IV) team
- Pediatric unit
- Labor suite/delivery room/newborn nursery
- Psychiatric unit
- Morgue
- Mobile intensive care unit

Sample forms for maintaining student activity records are included in the *Instructor Lesson Plans*. The forms are designed so that the medical director can determine the number of times, and how successfully, a student has performed a skill. The medical director also will be able to determine how much time the student needed to become proficient in the skill. Further, the medical director will be able to evaluate student performance under a number of preceptors, because certain skills are repeated in various clinical units (e.g., initiating an IV is performed by the student with the IV team and in the emergency department and intensive care unit).

Although the clinical experience is listed with the module, it need not be presented each time, even if a number of modules are being presented.

Testing and Evaluating the Student

It is recommended that each student be evaluated on proficiency of skill and knowledge at the completion of each module. Skill evaluation sheets have been provided for each skill in each unit. These sheets can be used as guides for evaluating the student's skill proficiency. The evaluation of the knowledge objectives is left to the discretion of the instructor, according to predetermined objectives.

Testing of knowledge should stress areas of clinical relevance over basic science. No matter what type of evaluation system is used, students should be kept informed of their progress and should be given additional activities to supplement weak areas.

As previously stated, the emphasis is on student competency, rather than on the total number of hours the student is involved in the program. Thus, it is possible for the student to be tested and given credit for any module. The medical director should not assume the student's competency simply because of prior training, but should develop an evaluation method to determine the student's proficiency based on first-hand observation and experience. With this type of method, it is possible for students to receive credit for prior training experience. This would be especially applicable for those modules that are primarily a review of skills concerned with Emergency Medical Technician-Ambulance; for example, soft-tissue injuries and rescue.

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MODULE IX MUSCULOSKELETAL INJURIES

INTRODUCTION

Prerequisites

The students must have successfully completed the following modules:

I. The Emergency Medical Technician, His Role, Responsibilities, and Training

II. Human Systems and Patient Assessment

III. Shock and Fluid Therapy

V. Respiratory System

VII. Central Nervous System

VIII. Soft-Tissue Injuries

Description of Module

Following is a summary of the topics discussed in this module:

Unit 1. Anatomy and Physiology: Discusses the major bones, joints, and muscles of the body.

Unit 2. Patient Assessment: Discusses the signs and symptoms of fractures, dislocations, strains, and sprains, and the information that

should be gathered from a patient with suspected musculoskeletal injury.

Unit 3. Pathophysiology and Management: Discusses the types of fractures, dislocations, sprains, and strains to various bones and joints of the body, including the signs and symptoms, general treatment, and complications of each.

Unit 4. Techniques of Management: Discusses the procedure for use of the various splinting devices available to an emergency medical technician (EMT).

Unit 5. Clinical Experience: Includes experience in the emergency department.

NOTES

UNIT 1 emt-p

ANATOMY AND PHYSIOLOGY

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

1.1.1.K Given a list of components, the student should be able to select the component(s) of the musculoskeletal system.

1.1.2.K Given a list of functions, the student should be able to select the function(s) of the musculoskeletal system.

1.2.1.K Given the following classifications of bones:

- Long bone
- Short bone
- Flat bone
- Irregular bone

the student should be able to recognize the classification for each one of a list of bones.

1.2.2.K Given a description of the following:

- Periosteum
- Marrow
- Cancellous bone
- Articular surface

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

- Medullary canal
- Cortical bone
- Diaphysis
- Metaphysis

the student should be able to recognize the label associated with each description from a list of labels.

1.2.3.K Given a diagram of the human body (or subsection diagrams) and a list of labels:

- Maxilla
- Mandible
- Vertebrae
- Cervical spine
- Thoracic spine
- Lumbar spine
- Sacral spine
- Coccygeal spine
- Clavicle
- Scapula
- Sternum
- Ribs
- Humerus
- Radius
- Ulna
- Carpals
- Metacarpals
- Phalanges
- Pelvis
- Femur
- Tibia
- Fibula
- Patella
- Ankle
- Tarsals
- Metatarsals

the student should be able to place an identifier on the diagrams indicating the position of the bones on the diagram.

1.3.1.K Given a list of statements, the student should be able to select the one that best defines the function of the joint.

1.3.2.K Given descriptions of possible functions that the joints serve, the student should be able to recognize the four major functions.

1.3.3.K Given the following words:

- Capsule
- Synovial membrane
- Cartilage
- Ligaments

the student should be able to define each.

NOTES

1.3.4.K Given a list of joints and the following classifications:

- Ball and socket
- Hinge
- Limited motion
- Fused

the student should be able to identify the classification that applies to each joint.

1.4.1.K The student should be able to recognize the label associated with each description of a joint from a list of labels.

1.4.2.K Given a list of muscles, the student should be able to identify those muscles that are:

- Voluntary (striated)
- Involuntary (smooth)
- Cardiac

1.4.3.K Given a list of statements, the student should be able to select the one that best defines:

- Origin of a muscle
- Insertion of a muscle
- Tendons

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Knowledge objectives for this unit
- Chapter 9, Unit 1, of the *Text*

Prepare a lecture following the content outline on page IX-6. Provide any slides, overlays, charts, or diagrams required for the lecture. The following activities are suggested:

- Review the knowledge objectives.
- Inform the students that there will be no demonstrations or practice sessions with this unit.

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- When presenting the lecture on anatomy, use an anatomical manikin or a student as a visual representation. The instructor should also provide animal samples of bones, joints, etc., and explain the structure of each.
- As a review of topographic anatomy, have each student select a partner and palpate selected bones and muscles as directed by the instructor.
- When reviewing topographical anatomy, present the associated nerves and peripheral pulses, if present. This knowledge will be used in the section on patient assessment.
- Answer any questions.

Test the students. Use the objectives as a guide. Advise each student of his progress and suggest remedial instruction.

Equipment and Materials

Equipment—Educational

Anatomical manikin
Animal sample—bone
Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

Introduction

- Review the knowledge objectives.
- Introduce the topics of discussion.

— Musculoskeletal system
  a. Composition
  b. Function
— Bones
  a. Classification
  b. Structure
  c. Skeletal bones

NOTES

— Joints
  a. Function
  b. Components
  c. Classification
— Muscles
  a. Types
  b. Function

NOTES

1.1. Musculoskeletal system

A. Composition
  1. Bones
  2. Muscles
  3. Ligaments
  4. Tendons
  5. Cartilage
B. Function
  1. Support
  2. Shape
  3. Protection
  4. Locomotion
  5. Production of red blood cells

1.2. Bones

A. Classification (give examples of each)
  1. Long (e.g., humerous)
  2. Short (e.g., phalanges)
  3. Flat (e.g., sternum)
  4. Irregular (e.g., vertebrae)
B. Structure
  1. Types of bone (describe the differences and locations)
    a. Cancellous—spongy
    b. Cortical—dense, hard
  2. Anatomy of a tubular bone
    a. Articular surface
    b. Diaphysis
    c. Metaphysis
    d. Periosteum
    e. Marrow
    f. Medullary canal

C. Skeletal bones (describe the locations and functions)

1. Head
   a. Cranium—skull, protects the brain
      (1) Frontal
      (2) Occipital
      (3) Parietal
      (4) Temporal
   b. Facial bones—gives shape to the face
   c. Maxilla—upper jaw
   d. Mandible—lower jaw; forms the mouth
2. Spinal column—vertebrae (review from Module VII)
   a. Function
      (1) Protects the spinal cord
      (2) Supports the head and trunk
   b. Components
      (1) Vertebrae—33
      (2) Cartilage—disks; cushions the vertebrae and limits the range of motion
   c. Regions
      (1) Cervical spine (7 vertebrae)
      (2) Thoracic spine (12 vertebrae)
      (3) Lumbar spine (5 vertebrae)
      (4) Sacral spine (5 fused vertebrae)
      (5) Coccygeal spine (4, occasionally 5 or 3, fused vertebrae)
   d. Injuries
      (1) High incidence for cervical and lumbar spine because of the lack of support
      (2) Low incidence for the thoracic spine because of support of the ribs
      (3) Low incidence for the sacrum because of support of the pelvis
3. Thorax—rib cage
   a. Point out that there are 12 pairs of ribs.
   b. Point out that the upper seven pairs are joined in front by the sternum (breastbone).
   c. Point out that the next three pairs are joined by cartilage attached to the sternum.
   d. Point out that the last two pairs have no front attachment (floating ribs).

NOTES

e. Point out that the clavicles, or collarbones, support the sternum and help form the shoulder.
f. Point out that the scapula, or shoulder blades, form part of the shoulder joint.

4. Upper extremities
   a. Humerus—arm
   b. Ulna and radius—forearm
   c. Carpals—wrist
   d. Metacarpals—hand
   e. Phalanges—fingers
5. Pelvis—hip bones
   a. Ileum
   b. Ischium
   c. Pubis
6. Lower extremities
   a. Femur—thigh bone
   b. Patella—knee cap
   c. Tibia—shin bone
   d. Fibula—lower leg; forms the outer part of the ankle
   e. Tarsals—ankle
   f. Metatarsals—foot
   g. Phalanges—toes

1.3. Joints

A. Function
   1. Connection between two bones
   2. Provides stability and mobility
B. Components
   1. Bone ends are covered with articular cartilage.
   2. Synovial membrane produces a lubricating fluid.
   3. Capsule is a thick, fibrous layer.
   4. Ligaments are bands of connective tissue that bind the bones together, allowing some flexibility.
C. Classification (give examples)
   1. Describe the relative development of joints with respect to mobility versus stability.
   2. Discuss ball and socket joints.
      a. Point out that they give a wide range of motion in all directions.
      b. Give examples—shoulder and hip joints.

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3. Discuss hinge joints.
   a. Point out that they give a wide range of motion in only two directions.
   b. Give examples—elbow and knee joints.
4. Discuss limited-motion joints—joints of the spinal column.
5. Discuss fused joints.
   a. Point out that they allow no motion.
   b. Give examples—bones of the cranium fused together.

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1.4. Muscles

A. Discuss the types (give examples).
   1. Voluntary—can be consciously controlled
   2. Involuntary—cannot be consciously controlled
   3. Cardiac—muscle of the heart—similar to involuntary muscle, but has automaticity
B. Discuss the function of the skeletal muscles.
   1. Point out that skeletal muscles can only exert force by contracting.
   2. Point out that skeletal muscles work in pairs.
   3. Point out that skeletal muscles move the bones.
      a. Origin—point out where the muscle attaches to a stationary bone.
      b. Insertion—point out where the muscle attaches to a movable bone.
   4. Point out that tendons attach the muscles to the bones.
C. Review major muscle groups, that is, deltoid, bicep, tricep, etc.

1.5. Related pulses

A. Point out that they are necessary to evaluate circulatory status distal to the injury.
B. Discuss major pulse points (review the locations):
   1. Temporal artery
   2. Facial artery
   3. Carotid artery
   4. Radial artery

5. Brachial artery
6. Dorsalis pedis artery
7. Popliteal artery
8. Femoral artery

NOTES

Summary

- Review the knowledge objectives.
- Review the topics of discussion.
  - — Musculoskeletal system
    - a. Composition
    - b. Function
  - — Bones
    - a. Classification
    - b. Structure
    - c. Skeletal bones
  - — Joints
    - a. Function
    - b. Components
    - c. Classification
  - — Muscles
    - a. Types
    - b. Function
    - c. Muscle groups
  - — Related pulses
- Answer any questions.

UNIT 2 emt-p

PATIENT ASSESSMENT

Knowledge Objectives

NOTES

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

2.1.1.K Given a list of mechanisms and a list of types of injuries, the student should be able to match the type of injury with the probable mechanism; for example, a fractured/dislocated hip in auto accident caused by the knees hitting the dashboard—indirect injury.

2.2.1.K Given a description of various situations describing some type of trauma to the patient, including the signs of a mechanism of injury, the student should be able to identify the mechanism of injury.

2.3.1.K The student should be able to recall the information that should be gathered when completing a history on a patient with suspected musculoskeletal trauma. The information collected should include:

- How the injury occurred
- Position of limb when injury occurred
- Location of pain

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

2.4.1.K The student should be able to recall five signs and symptoms that indicate a musculoskeletal injury.

NOTES

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit.

- Knowledge objectives for this unit
- Chapter 9, Unit 2, of the *Text*

Prepare a lecture following the content outline on page IX-15. Provide any slides, overlays, charts, or diagrams. The following activities are suggested.

- Review the knowledge objectives.
- Inform the students that there will be no demonstrations or practice sessions with this unit.
- Review examples of different types of injuries and the mechanisms of those injuries.
- When reviewing the steps of the physical examination, emphasize the evaluation of neuromuscular function and circulatory status distal to the injury. The instructor is directed to review the procedures carefully with the students.

Test the students using the objectives as a guide. Advise each student of his progress and suggest remedial instruction.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

NOTES

Introduction

- Review the knowledge objectives.
- Introduce the topics of discussion:

  — Patient evaluation
  — Mechanisms of injury
  — Patient history
  — Physical examination

2.1. Patient evaluation

A. Conduct visual examination
   1. Patient
   2. Environment (mechanisms of injury)
B. Ask the patient to identify the areas of pain.
C. Ask the patient to move each extremity.
D. Conduct patient history
E. Conduct physical examination
   1. Inspection
   2. Palpation

2.2. Mechanisms of injury

A. Point out that trauma results from a variety of mechanisms.
   1. Direct injury—bone broken at the point of impact
   2. Indirect injury—fracture at some distance from the impact
   3. Twisting injuries—torsion on the joint with the distal part of limb fixed
   4. Powerful muscle contractions—that is, seizures, tetanus
   5. Fatigue fractures—repeated stress causes damage; for example, fractures of the feet after prolonged walking.
   6. Pathologic fractures—diseased patients; occur with minimal force
B. Point out that an EMT must evaluate the scene for mechanisms of injury—discuss an example with students.

2.3. Patient history

A. Point out that the patient will indicate the recent traumatic incident, for example, a fall.
B. Discuss evidence of localized pain.
C. Point out that an EMT should determine:
   1. How the injury occurred
   2. Position of a limb when injury occurred
   3. Extraneous conditions that may account for an injury, that is, cancer

2.4. Physical examination for a musculoskeletal injury

A. Musculoskeletal injuries usually are not life-threatening problems
B. Physical signs include:
   1. Swelling and ecchymosis
   2. Deformity
   3. Tenderness on palpation
   4. Grating or crepitus—do *not* attempt to elicit this sign
   5. Guarding of the injured area—pain on movement
   6. Disability—loss of movement
C. Physical examination includes:
   1. Inspection of the injured area
   2. Palpation of the injured area
   3. Palpation for distal arterial flow in an extremity (review the locations of pulses)
   4. Evaluation of the neuromuscular function

Summary

- Review knowledge objectives.
- Review topics of discussion:

  — Patient evaluation
  — Mechanisms of injury
  — Patient history
  — Physical examination

- Answer any questions.

NOTES

UNIT 3 emt-p

PATHOPHYSIOLOGY AND MANAGEMENT

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

3.1.1.K Given a list of definitions, the student should be able to select the one that best defines a fracture.

3.1.2.K Given a list of statements, the student should be able to select the one that best describes the difference between an open and a closed fracture.

3.1.3.K Given a description or a diagram of a type of fracture, the student should be able to correctly label the fracture, indicating whether it is a greenstick, transverse, spiral, oblique, impacted, or comminuted fracture.

3.1.4.K The student should be able to list five signs and symptoms of a fracture.

3.1.5.K Given a description of a patient with a suspected traumatic injury, the student should be able to select the information that indicates that the patient has a suspected fracture.

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

3.1.6.K Given a list of activities and a patient with a suspected fracture, the student should be able to select the appropriate treatment for the patient from the list of activities.

3.2.1.K Given a list of definitions, the student should be able to select the one that best defines a dislocation.

3.2.2.K Given a list of signs and symptoms, the student should be able to identify those signs and symptoms that indicate the patient may have a dislocation.

3.2.3.K Given a list of activities and a patient with a suspected dislocation, the student should be able to select the appropriate treatment for the patient from the list of activities.

3.3.1.K Given a list of definitions, the student should be able to select the one that best defines a sprain.

3.3.2.K Given a list of signs and symptoms, the student should be able to select those signs and symptoms that differentiate a sprain from a fracture or dislocation.

3.3.3.K Given a patient with a muscle strain and a list of activities, the student should be able to select the appropriate treatment for the patient from the list of activities.

3.4.1.K Given a list of definitions, the student should be able to select the one that best defines a strain.

3.4.2.K Given a list of activities and a patient with a muscle strain, the student should be able to select the appropriate treatment for the patient from the list.

Instructor Activities

Assign the material referred to below during the class period immediately beginning the unit:

- Knowledge objectives for this unit
- Chapter 9, Unit 3, of the *Text*

NOTES

Prepare a lecture following the content outline on page IX-20. Provide any slides, overlays, charts, or diagrams. The following activities are suggested:

- Review the knowledge objectives.
- Inform the students that there will be no demonstrations or practice sessions in this unit.
- Inform the students that musculoskeletal injuries include soft-tissue injuries and injuries to the spine and head, but that these areas will not be discussed in this unit because they are discussed in Modules VIII and VII, respectively.
- Inform the students that the actual immobilization techniques will be discussed in Unit 4.
- Present photographs of various fractures and dislocations illustrating ecchymosis, deformity, etc.
- When presenting the discussion of fractures and dislocations, provide X-ray photographs of the various types of injuries and injuries to different bones and joints in the body for the students to review. It may be necessary to explain the X-ray process and the significance of the shadings on the photograph.

Evaluate the student's ability to perform each of the objectives. The student can be evaluated on completion of this unit or the entire module. The evaluation should use the objectives as a guide. Following the evaluation, the instructor will advise the student of his progress and suggest remedial instruction.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
X-ray photographs of fractures or dislocations
Text

NOTES

Content Outline

NOTES

Introduction

- Review knowledge objectives.
- Introduce topics of discussion:

  — Fractures
  — Dislocations
  — Strains
  — Sprains

3.1. Fractures

A. Define it as a break in the continuity of a bone.
B. Discuss the classes:
   1. Closed (simple)—overlying skin is intact
   2. Open (compound)—wound over the fracture site
C. Discuss the types and describe each, including probable mechanism. Present an X-ray of each if possible:
   1. Greenstick
   2. Transverse
   3. Spiral
   4. Oblique
   5. Impacted
   6. Comminuted
D. Discuss the signs and symptoms.
   1. Pain at injury site
   2. Swelling and ecchymosis
   3. Deformity or shortening
   4. Tenderness upon palpation
   5. Crepitus or a sensation of grating
   6. Disability (loss of use)
   7. Guarding
E. Discuss specific fractures of the following—include signs and symptoms, probable mechanism, X-ray, complications, and general management:
   1. Clavicle
   2. Shoulder
   3. Humerus
   4. Radius/ulna

5. Wrist/hand
6. Pelvic area
7. Hip
8. Femur
9. Patella
10. Tibia/fibula
11. Ankle
12. Foot
13. Ribs

F. Discuss the general principles of treatment (immobilization techniques are discussed in Unit 4):
   1. Avoid movement of the injured area.
   2. Check the pulses distal to the injury and record the findings.
   3. If it is an open injury, dress the wound before splinting.
   4. Straighten severely angulated fractures that do not involve the joints.
   5. Do *not* straighten angulated fractures of joints.
   6. Do *not* reinsert bone ends protruding in an open wound.
   7. Immobilize possible fractures before moving the patient.
   8. Immobilize the joints above and below a fracture.

3.2. Dislocations

A. Define them as a displacement of a bone end from its articular surface, with associated tearing of ligaments.
B. Discuss the signs and symptoms:
   1. Pain at the site of injury
   2. Pressure at the joint
   3. Deformity
   4. Loss of motion
   5. Paralysis, paresthesia distal to the dislocation
C. Discuss specific dislocations of the following—include signs and symptoms, probable mechanisms, X-ray, complications, and general management:
   1. Clavicle
   2. Shoulder
   3. Elbow
   4. Wrist

NOTES

5. Hand/finger
6. Hip
7. Knee
8. Patella
9. Ankle
10. Foot

D. Discuss the general principles of treatment (immobilization techniques are discussed in Unit 4):
   1. Avoid movement of the injured joint.
   2. Check the pulses distal to the injury and record the findings.
   3. Immobilize the dislocation in the position it was found in—do not straighten or reduce it.
   4. Remember, treatment is the same as that for a fracture.

3.3. Sprains

A. Define them as an injury to ligaments, partially torn, usually due to the sudden twisting of a joint beyond its normal range.
B. Discuss the signs and symptoms:
   1. Pain
   2. Ecchymosis
   3. Swelling
   4. Loss of use
C. Discuss the general treatment:
   1. Usually treat them in the same manner as fractures.
   2. Remember, if no fracture is suspected:
      a. Elevate the joint.
      b. Apply an ice compress.

3.4. Strains

A. Define them as muscle spasms or injuries around a joint.
B. Point out that they are characterized by pain when moved.
C. Point out that they are treated by avoiding weight-bearing activities.

Summary

- Review the knowledge objectives.

NOTES

- Review the topics of discussion:
  - — Fractures
  - — Dislocations
  - — Strains
  - — Sprains
- Answer any questions.

NOTES

UNIT 4 emt-p

TECHNIQUES OF MANAGEMENT

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

4.1.1.K Given a list of statements, the student should be able to select the ones that best describe the purpose of splinting a possible fracture.

4.1.2.K Given a list of statements describing principles of splinting, the student should be able to select those statements that properly describe appropriate principles of splinting and to identify those statements that are not true with respect to principles of splinting.

4.1.3.K Given a list of statements, the student should be able to select the one that best defines the purpose of longitudinal traction.

4.2.1.K Given a list of definitions, the student should be able to select the one that best defines a splint.

4.2.2.K Given a series of descriptions of situations and the knowledge of the type and location of injury from the following types and locations:

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

- Type

  - — Closed fracture
  - — Open fracture
  - — Dislocation
  - — Sprain
  - — Strain
  - — Flail chest

- Location

  - — Upper arm
  - — Lower arm
  - — Hand
  - — Finger
  - — Upper leg
  - — Lower leg
  - — Foot
  - — Ankle
  - — Wrist
  - — Elbow
  - — Knee
  - — Ribs
  - — Clavicle
  - — Shoulder
  - — Hip
  - — Skull
  - — Facial bones

the student should be able to choose the appropriate equipment to use from a list of available equipment and to recognize the appropriate treatment steps from a list of treatment steps.

4.2.3.K Given a list of steps in random order describing the application of:

- Padded board splints
- Air splints
- Hare traction splint
- Pillow splint
- Sling and swathe
- Thomas splint

the student should be able to place the steps in the correct order for each of the above devices.

4.2.4.K Given a list of the common problems encountered when applying:

- Padded board splints
- Air splints

NOTES

- Hare traction splint
- Pillow splint
- Sling and swathe
- Thomas splint

and a list of activities, the student should be able to select the appropriate activity to correct the problem from the list of activities.

NOTES

Skill Objectives

After completing this module, the students should be able to correctly perform each of the skill objectives. "Correctly" will be defined by the instructor during the lecture and demonstration sessions. Skill evaluation sheets are included in the module.

4.2.1.S Given an air splint and a fellow student posing as a victim, the student should be able to correctly perform the steps necessary to immobilize a suspected fracture. The student should successfully immobilize fractures of each of the following:

- Upper arm
- Lower arm
- Wrist or hand
- Lower leg
- Ankle or foot

The student must demonstrate the correct procedures for each of these fractures to complete the objective.

4.2.2.S Given a padded board splint, pillow, Kling or elastic bandage, tape, a long board, and a fellow student posing as a victim, the student should be able to correctly perform the steps necessary to immobilize a suspected fracture. The student must successfully immobilize fractures of each of the following:

- Upper arm
- Lower arm
- Wrist or hand

- Lower leg
- Ankle or foot
- Upper leg
- Hip

The student must demonstrate the correct procedures for each of these fractures to complete the objective.

4.2.3.S Given a full backboard, gauze, Kling or Ace bandage, tape and cravats, and a student posing as a victim, the student should be able to correctly perform the steps necessary to immobilize a suspected fracture of the hip.

4.2.4.S Given a Hare traction splint, a fellow student to assist, and a student posing as a victim, the student should be able to correctly apply traction and immobilize a suspected fracture of the femur.

4.2.5.S Given a tongue depressor, roller gauze, tape, and a fellow student posing as a victim, the student should be able to correctly immobilize a suspected fracture of the finger or thumb.

4.2.6.S Given equipment cravats, gauze, Kling or Ace bandages, tape, and a fellow student posing as a victim, the student should be able to correctly perform the steps necessary to immobilize a suspected fracture of the shoulder or clavicle. The student should successfully immobilize fractures of one of each:

- Shoulder
- Clavicle

The student must demonstrate the correct procedures for each of these fractures to complete the objective.

4.2.7.S Given a padded arm board, gauze, Kling or Ace bandages, tape, and a student posing as a victim with a suspected dislocation of a joint, the student should perform the steps necessary to immobilize a dislocation. The student should

NOTES

successfully immobilize a dislocation of a joint in each of the following situations:

- Elbow (arm straight)
- Elbow (arm at angle)
- Shoulder (anterior and posterior)
- Knee (leg straight)
- Knee (leg at angle)
- Ankle
- Hip

The student must demonstrate the correct procedures for each of these fractures to complete the objective.

4.2.8.S Given gauze dressings, gauze bandages, tape, sandbag, and a student posing as a victim, the student should be able to correctly perform the steps necessary to immobilize a suspected fracture of the ribs.

4.2.9.S Given gauze dressing, gauze bandages, tape, padded board splint, Ace or Kling bandages, and a student posing as a victim, the student should be able to correctly perform the steps necessary to dress and immobilize an open fracture of an extremity.

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Skill and knowledge objectives for this unit
- Chapter 9, Unit 4, of the *Text*

Prepare a lecture following the content outline on page IX-30. Provide any slides, overlays, charts, or diagrams.

The following activities are suggested:

- Review the skill and knowledge objectives.
- Prepare notes and conduct the following demonstrations:
  - 4.2.1.S Immobilization of Suspected Fracture or Dislocation of Shoulder or Clavicle

NOTES

4.2.2.S Immobilization of Suspected Fracture or Dislocation of an Extremity

4.2.3.S Fractures of the Ribs

- Answer any questions.

Monitor the students while they practice the demonstrated skills. The instructor should be available during the practice session to answer any questions and correct any incorrect performance.

Test the students on the skills. In addition, each student will be required to take a written examination. Advise each student of his progress and suggest remedial instruction if appropriate.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Equipment—Medical

Air splints (one set of six)
Board splints (one set of six)
Hare traction splints (two)
Padded tongue blade (one per student)
Gauze roller bandages (one per student)
Elastic roller bandages (one per student)
Triangular bandages (one per student)
Blankets (one per two students)
Sandbags (three)

Materials

Skill and knowledge objectives (optional)
Skill evaluation sheets
Written examination
Text

Content Outline

Introduction

- Review the skill and knowledge objectives.
- Introduce the topics of discussion:

NOTES

— Splinting and immobilization
  a. Purpose
  b. Principles
  c. Traction
— Splints
  a. Definition
  b. Types

4.1. Splinting and immobilization

A. Purposes:
  1. To prevent the conversion of a closed fracture to an open one
  2. To prevent further damage to the surrounding nerves, blood vessels, and tissue
  3. To minimize hemorrhage and swelling
  4. To minimize pain

B. Principles
  1. Straighten out severely angulated fractures before splinting.
  2. Do *not* attempt to straighten fractures involving the spine, shoulder, elbow, wrist, and all dislocations; with the knee, splint in position found.
  3. Do *not* push bone ends back beneath the skin in compound fractures.
  4. Immobilize the joints above and below the fracture site.
  5. Splint firmly, but not so firmly to occlude circulation. Periodically check the distal pulse.
  6. Keep the fingers and toes exposed.

C. Longitudinal traction
  1. Point out that it is applied to fractured extremities.
  2. Point out that it stabilizes the injured area with minimal damage.
  3. Illustrate the technique.

4.2. Splints

A. Define them as any device used to immobilize a fracture or dislocation.

B. Discuss the types (show example of each type, explain use):
  1. Rigid splint
    a. Point out that it is a nonflexible device attached to a limb (i.e., padded board).

NOTES

b. Discuss the use—for fractures of extremities.

2. Air splints
   a. Point out that they are inflatable balloon splints.
   b. Discuss the use—for fractures of the extremities, especially the forearm and lower leg.
3. Traction splints
   a. Provide constant traction on the extremity.
   b. Used for fractures of the femur
4. Slings
   a. Support an upper extremity
   b. Made of a cravat or kerchief
5. Sling and swathe
   a. Made of two cravats
   b. Used for clavicular, rib, or shoulder injuries
6. Ordinary pillow—used to immobilize injured foot or ankle
7. Military Anti-Shock Trousers (MAST)
   a. Point out that it may be used for lower extremity trauma.
   b. Point out that it is especially good for pelvic fractures.

C. Introduce Demonstrations 4.2.1.S, 4.2.2.S, and 4.2.3.S

Summary

- Review the skill and knowledge objectives.
- Review the topics of discussion:

— Splinting and immobilization
   a. Purpose
   b. Principles
   c. Traction
— Splints
   a. Definition
   b. Types

- Answer any questions.
- Introduce Practice Session 1.

NOTES

Demonstration 4.2.1.S: Immobilization of Suspected Fracture or Dislocation of Shoulder or Clavicle

NOTES

Equipment

Triangular bandages (two)

Procedure

Demonstrate the procedure step by step using a student as a patient.

Emphasize each step, including critical errors that can be made.

Be sure each student can see clearly.

Have a student repeat the demonstration, and critique the student.

Steps

1. Review the steps of the patient assessment. Emphasize the assessment for trauma-related incidents. Point out the signs and symptoms of a fracture or dislocation of the shoulder or clavicle.
2. Determine if the injury is an open fracture. Demonstrate the dressing of an open fracture.
3. Position the victim's arm so it is comfortable, with a cravat underneath.
4. Bring the cravat ends around the neck and tie in a knot on the side of the neck, opposite the injury.
5. Make a swathe and circle the body with it.
6. Secure the swathe with a knot or pins to avoid movement.

NOTE: This demonstration is placed first since the applications of the sling and swathe are required skills for Demonstration 4.2.2.S.

Demonstration 4.2.2.S: Immobilization of Suspected Fracture or Dislocation of an Extremity

NOTES

Equipment

Air splint (one set)
Board splint (one set)
Hare traction splint
Padded tongue blade
Gauze roller bandages
Triangular bandages
Blanket (one)

Procedure

Demonstrate the procedure step by step using a student as a patient.

Emphasize each step, including critical errors that can be made.
Be sure each student can see clearly.
Have a student repeat the demonstration, and critique the student.
Use a student as an assistant.

Steps

1. Review the steps of a patient assessment. Emphasize the assessment for trauma-related incidents. Point out the signs and symptoms of a fracture or dislocation.
2. Determine if the injury is an open fracture. Demonstrate the dressing of the wound. Point out that the rescuer should not:
   a. Move the fracture
   b. Apply too much pressure to the wound
3. Demonstrate the application of longitudinal traction to a fractured extremity—point out:
   a. Reasons for traction
   b. What to do if resistance is felt when straightening an angulated fracture
   c. Required amount of traction
4. Determine the equipment required to immobilize the suspected fracture. The equipment to be demonstrated is as follows:

a. Air splint (various sizes)
b. Padded board splint (various sizes)
c. Hare traction splint

The following subsections of the demonstration should be completed for each piece of equipment where it may be appropriately used. A student volunteer will be used to assist in the demonstration.

5. Demonstrate immobilization of the lower arm (forearm).
   a. Using an air splint (tubular type), point out:
      (1) Gathering of the splint on the arm
      (2) Position of the hands of both rescuers to apply traction and put on the splint
      (3) How to put on and inflate the splint
      (4) How to determine if the splint is inflated properly
      (5) Need to assure circulation and how this is assured
   b. Using an air splint (zipper type), point out:
      (1) Placement of the arm in the splint
      (2) Difficulty in maintaining traction while applying the splint
      (3) How to zip up the splint
      (4) How to inflate the splint
      (5) How to determine if the splint is inflated properly
      (6) Need to assure circulation and how this is assured
   c. Using a padded board splint, point out:
      (1) Position of the hands to apply traction
      (2) Placement of padding on the splint to assure even contact
      (3) How to bind the arm to the splint using gauze or an elastic roller bandage
      (4) Need to assure circulation and how this is assured
   d. Discuss application of the sling and the reason for its use.
6. Demonstrate immobilization of the wrist, hand, or finger.
   a. Using an air splint (tubular or zipper type), point out:
      (1) Difference in application of a tubular and partial zipper type with the application of a full zipper type, which can be opened flat
      (2) Use of a roll bandage to maintain the curve of the hand
      (3) Problem of overinflation and monitoring the circulation
   b. Using a padded board splint, point out:

NOTES

(1) Use of a roll bandage to maintain the curve of the hand (position of function)
(2) Binding of the hand or wrist to a padded board splint
(3) Problem of binding too tight and monitoring the circulation

c. Using a tongue depressor for a finger, point out:
(1) Need for the depressor to extend to at least the middle of the palm.
(2) Need to be sure not to shut off the circulation

D. Discuss the application of a sling.

7. Demonstrate immobilization of the upper arm.
a. Using a padded board splint, point out:
(1) Placement of a board splint
(2) Need to be careful in binding so unnecessary pressure is not put on the fracture
(3) Use of a sling and how the sling should support the arm at the wrist
(4) Necessity to bind the arm to the body with a swathe

b. Using a sling and swathe only, point out that an EMT should use these only if a board splint is not available.

8. Demonstrate immobilization of the lower leg.
a. Using a tubular air splint without the foot, point out:
(1) Gathering of the splint on the leg
(2) Positions of the hands of both rescuers to apply traction and put on the splint
(3) How to put on and inflate the splint
(4) How to determine if the splint is inflated properly
(5) Need to assure circulation and how this is assured

b. Using a zipper air splint with or without the foot, point out:
(1) Placement of the leg in a splint
(2) Inability to maintain traction
(3) How to zip up the splint and inflate it
(4) How to determine if the splint is inflated properly
(5) Need to assure circulation and how this is assured
(6) Problem encountered when using a foot attachment

c. Using a padded board splint, point out:
(1) Position of the hands to apply traction
(2) Placement of padding on the splint to assure even contact
(3) How to bind the leg to the splint using gauze or an elastic roller bandage

NOTES

(4) Need to assure circulation and how this is assured

9. Demonstrate immobilization of the upper leg.
   a. Using a long padded board splint, point out:
      (1) Length of the splint required (armpit to foot)
      (2) How to apply traction while splinting
      (3) How to tie a board splint to the leg and body
      (4) Need to assure adequate circulation
      (5) How the same procedure (without traction) can be used to immobilize a fractured hip
   b. Using a full backboard, point out:
      (1) How to apply traction while splinting
      (2) How to place a blanket between the legs
      (3) How to secure the legs together
      (4) How to secure the victim to the backboard
      (5) Need to assure that there is adequate circulation
      (6) How the same procedure (without traction) can be used to immobilize a fractured hip
   c. Using Hare traction splint, point out:
      (1) How to apply manual traction while splinting
      (2) How to adjust a splint
      (3) How to position a splint and secure an ischial strap
      (4) How to apply T straps and attach the traction strap
      (5) How to tighten winch to obtain traction
      (6) How to determine if the proper amount of traction has been applied
      (7) How to secure an extremity to the splint
      (8) Need to assure adequate circulation
      (9) Use of this splint for lower leg fractures
10. Demonstrate immobilization of the ankle or foot using pillows—point out:
   a. Necessity to limit movement while applying the pillow
   b. How to mold the pillow around the foot or ankle
   c. How to secure the pillow with cravats or bandages
   d. Need to assure adequate circulation
11. Demonstrate immobilization of a fracture or dislocation of a joint—point out:
   a. A splint is needed to immobilize the joint in the position in which the limb is found.
   b. The splinting procedure must be improvised as limbs will be treated in various positions.
   c. Demonstrate splinting a using board splint to the following:

NOTES

(1) Elbow, arm straight
(2) Elbow, arm at angle
(3) Knee, leg at angle

12. Point out the necessity to continuously monitor the patient's circulation in the affected area and what to do if circulation appears to be absent.
13. Point out that it may be necessary to treat the patient for shock.

NOTES

Demonstration 4.2.3.S: Fractures of the Ribs (review from Module V)

NOTES

Equipment

Triangular bandage
Sandbags

Procedure

Demonstrate the procedure step by step using a student as a patient.

Emphasize each step, including critical errors that can be made.

Be sure each student can see clearly.

Have a student repeat the demonstration, and critique the student.

Steps

1. Review the patient assessment. Emphasize the assessment related to trauma incidents—point out:
   a. Signs and symptoms of a fracture in the chest cavity
   b. Need to examine for a sucking chest wound and what to do about such a wound
   c. Signs of tension pneumothorax and what should be done
   d. Signs of a flail chest and the problems related with this condition
2. Review the steps for treatment of a sucking chest wound.
3. Place a sandbag on the chest if a flail chest seems to be present.
4. Tape the pad to the chest as an alternate method.
5. Tape the patient's arm over his chest as another method to immobilize.
6. Roll the patient onto his injured side to improve the seal of the tape.

Practice Session 1

Equipment

Air splints (one set of six)
Board splints (one set of six)
Hare traction splints (two)
Padded tongue blade (one per student)
Gauze roller bandages (one per student)
Elastic roller bandages (one per student)
Triangular bandages (one per student)
Blankets (one per two students)
Sandbag (three)

Skills

All skills demonstrated

Procedure

The instructor should have the following practice stations:

1. Immobilization of a fracture of:
   a. Upper arm
   b. Lower arm
   c. Hand or wrist
   d. Lower leg
   e. Upper leg or hip

   - Equipment:
     - — Gauze roller bandages
     - — Triangular bandages
     - — Board splints
     - — Roll tape
     - — Gauze bandages (4 × 4 inches and 4 × 8 inches)

2. Immobilization of a fracture of:
   a. Upper arm
   b. Lower arm
   c. Hand or wrist
   d. Lower leg
   e. Foot or ankle

NOTES

- Equipment:

  — Elastic roller bandages
  — Triangular bandages
  — Air splints—six sizes
    (1) Tubular type
    (2) Zipper type
  — Gauze bandages (4 × 4 inches and 4 × 8 inches)
  — Roll tape

3. Immobilization of a fracture of:
   a. Hip using full backboard
   b. Foot or ankle using pillow
   c. Finger using tongue depressor
   d. Shoulder or clavicle using sling or swathe

   - Equipment:

     — Gauze roller bandages
     — Elastic roller bandages
     — Full backboard
     — Pillow
     — Tongue depressor splint
     — Roll tape

4. Immobilization of a fracture of:
   a. Lower leg using Hare traction splint
   b. Fractured ribs

   - Equipment:

     — Hare traction splint
     — Elastic roller bandage
     — Sandbag
     — Triangular bandages
     — Roll tape

NOTES

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.1.S: Immobilization of a Suspected Fracture of an Extremity Using an Air Splint

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Air splint (one set)

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the secondary survey for a trauma-related incident.

NOTES

___ ___ ___ B. Relate the signs and symptoms of a fracture.

___ ___ ___ C. Dress an open fracture.

___ ___ ___ D. Select the proper equipment to use.

___ ___ ___ E. Apply manual traction to the fracture area.

___ ___ ___ F. Apply a splint.

___ ___ ___ 1. Minimize movement.

___ ___ ___ 2. Apply properly.

___ ___ ___ G. Inflate the splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Immobilize the fracture.

___ ___ ___ 3. Check for adequate circulation.

___ ___ ___ H. Apply sling and swathe if an arm, hand, or wrist are being treated.

Areas for evaluation	*Tubular*	*Zipper*
Lower arm or lower leg	_____	_____
Hand or wrist	_____	_____

NOTES

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.2.Sa: Immobilization of a Suspected Fracture of an Extremity Using Padded Board Splint

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Padded board splint
Elastic bandage

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the assessment for a trauma-related incident.

NOTES

___ ___ ___ B. Relate the signs and symptoms of a fracture.

___ ___ ___ C. Dress an open fracture (if present).

___ ___ ___ D. Select the proper equipment to use.

___ ___ ___ E. Apply manual traction to the fractured area.

___ ___ ___ F. Apply a board splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Apply it properly.

___ ___ ___ 3. Pad where it is needed.

___ ___ ___ G. Bind and secure a splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Bind properly.

___ ___ ___ 3. Immobilize the fracture.

___ ___ ___ 4. Check for adequate circulation.

___ ___ ___ H. Apply sling and swathe if an arm, hand, or wrist are being treated.

Area selected for evaluation:

_____ Lower arm or lower leg

_____ Upper arm

_____ Upper leg or hip

_____ Hand, wrist, or foot

NOTES

Student's name_____

Date_____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.2.Sb: Immobilization of a Suspected Fracture of the Foot Using a Pillow

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Pillow
Cravats (two)

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the assessment for a trauma-related incident.

NOTES

___ ___ ___ B. Relate the signs and symptoms of a fracture.

___ ___ ___ C. Dress an open fracture.

___ ___ ___ D. Select the proper equipment to use.

___ ___ ___ E. Use a pillow to immobilize.

___ ___ ___ 1. Minimize movement.

___ ___ ___ 2. Apply properly.

___ ___ ___ F. Find and secure a pillow.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Bind properly.

___ ___ ___ 3. Immobilize the fracture.

___ ___ ___ 4. Check for adequate circulation.

NOTES

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.4.S: Immobilization of a Suspected Fracture of Femur Using Hare Traction Splint

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Hare traction splint

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the assessment for a trauma-related incident.

___ ___ ___ B. Relate the signs and symptoms of a fracture.

NOTES

___ ___ ___ C. Dress an open fracture (if present).

___ ___ ___ D. Select the proper equipment to use.

___ ___ ___ E. Apply manual traction to the fracture area.

___ ___ ___ F. Adjust and apply a splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Attach an ischial strap for traction.

___ ___ ___ 3. Apply traction.

___ ___ ___ G. Bind and secure a splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Bind the straps properly.

___ ___ ___ 3. Immobilize the fracture.

___ ___ ___ 4. Check for adequate circulation.

NOTES

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.6.S: Immobilization of a Suspected Fracture or Dislocation of Shoulder or Clavicle

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Cravat (two)

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the assessment for a trauma-related incident.

___ ___ ___ B. Relate the signs and symptoms of a fracture.

NOTES

___ ___ ___ C. Position the victim.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Position properly.

___ ___ ___ D. Apply a cravat.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Position properly.

___ ___ ___ 3. Secure properly.

___ ___ ___ E. Apply a swathe.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Position properly.

___ ___ ___ 3. Secure properly.

___ ___ ___ 4. Immobilize the fracture area.

NOTES

Student's name_____

Date_____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 4.2.7.S: Immobilization of a Suspected Dislocation or Fracture of a Joint

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Board splint
Gauze roller bandages
Triangular bandage

Procedure

Each student should be given the equipment listed above.

The evaluator should act as the student's assistant during the evaluation, and should be permitted to perform only those tasks designated by the student.

A student should act as the victim and should be conscious and responsive.

The student victim should simulate the symptoms of the injury selected by the evaluator and should forward information to the student being evaluated only when asked.

The evaluator should inform the student that the patient has had a traumatic injury because of a fall.

The student should evaluate the patient, and then demonstrate injury immobilization as a step in treatment. It is not necessary for the student to perform any other steps of treatment.

Steps

___ ___ ___ A. Perform the steps of the assessment for a trauma-related incident.

NOTES

___ ___ ___ B. Relate the signs and symptoms of a fracture or dislocation.

___ ___ ___ C. Select the proper equipment to use.

___ ___ ___ D. Apply a splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Apply properly.

___ ___ ___ 3. Pad where it is needed.

___ ___ ___ E. Bind and secure a splint.

___ ___ ___ 1. Minimize the movement.

___ ___ ___ 2. Bind properly.

___ ___ ___ 3. Immobilize the fracture.

___ ___ ___ 4. Check for adequate circulation.

___ ___ ___ F. Apply a sling and swathe if an arm, hand, or wrist are injured.

Areas for evaluation	*Straight position*	*Bent*
Knee or elbow	_____	_____

NOTES

UNIT 5 emt-p

CLINICAL EXPERIENCE

NOTES

Description of Unit

In the previous units, the students are trained to perform skills in simulated situations in the classroom. The purpose of the clinical experience is to provide the student with the opportunity to become proficient in the skills presented in the classroom setting.

If a number of modules are being presented together, it is not necessary for the clinical experience to be presented after each module. The clinical experience associated with each module can be combined and presented upon completion of the classroom sessions.

Objectives

The following objectives are proposed for the clinical experience. Because of patient availability, it is possible that all skills listed below may not be performed by the student, but as many skills as possible should be observed and practiced by the student under the supervision of the preceptor.

Emergency Department

During the experience in the emergency department, the student will have the opportunity to practice on actual patients under direct supervision and to demonstrate, with proficiency and to the satisfaction of the preceptor, each of the following:

- Perform patient assessment including developing relevant medical history and doing a physical examination. The assessment

should include, at a minimum, taking and recording vital signs, and auscultation of chest and abdominal sounds, with emphasis placed on the assessment of patients with soft-tissue and musculoskeletal trauma.

- Assist and review the treatment of trauma cases. At a minimum, the student should review cases of:

  — Massive hemorrhage, any source
  — Injuries to specific area
  — Multiple trauma
  — Suspected extremity fracture

- Assist in trauma cases requiring hemorrhage control, suturing, immobilization and splinting.

Upon completion of the clinical experience, the trainee should be involved in a supervised internship on the vehicle. During this internship, the trainee will be supervised by a preceptor (physician, nurse, or certified EMT) in the skills presented during the training program. Guidelines for this internship are identical to those presented for the other clinical areas and should be used as a reference. Specific guidelines for the internship and sample checklists may be found in Appendix A of the *Instructor Lesson Plans*.

Preceptor Activities

Review the objectives with the course coordinator and discuss which objectives are to be included in the unit activities. If the preceptor has any questions concerning specific skills or procedures, he should be referred to the appropriate module for a review of the materials presented to the student.

Have the student sign in and determine his proper attire, for example, sterile greens.

Review the rules and operating procedures within the unit, making certain to define the student's role within the unit. Any special regulations concerning the student's activities should be defined.

Define those skills that will and will not be included in this instructional unit, but were discussed during the classroom activities.

Review the history, diagnosis, complications, and treatment of each patient in the unit. The activities of the student should not be limited to those specifically defined in the objectives.

NOTES

For each activity, demonstrate the skill initially, coach the student through the skill at least one time, and then observe the student as he performs the skill.

Supervise the student when he is performing activities within the unit. The preceptor should review critically the student's technique and suggest corrections where appropriate.

Assist and evaluate the student until he is competent in each activity on the checklist.

Answer any of the student's questions concerning activities in the unit or specific patients and their conditions.

Review the objectives for this instructional unit periodically, and discuss the student's progress with respect to the items on the checklist.

Mark the student's activities checklist after each clinical session. The checklist should be marked indicating the number of total observations (O), total attempts to perform the activity by the student (T), and the number of successful attempts (S) for each activity. Once the student has successfully demonstrated the skill to the satisfaction of the preceptor, the session number during which the preceptor made the evaluation should be entered in the "Completed" column. Any comments should be listed in the appropriate space. Specifically, comment should be made if the student does not become proficient at any given skill. Once the student has successfully demonstrated his proficiency at a given skill, however, he should still continue to perform the skill while in the unit.

Student Activities

The student should:

- Report to the specialty unit on his scheduled date and shift and "sign in" with the supervisor.
- Review the rules and operating procedures within the unit with the preceptor, making certain that his role in the unit is defined.
- Review the history, diagnosis, complications, and treatment of each patient in the unit.
- Observe and participate in unit activities as directed by the preceptor. (If the student observes a technique or procedure performed differently from its presentation during the classroom activities, he may question the preceptor about differences observed, but remember that the techniques presented

NOTES

during the lecture may not be the only correct method.)

- Perform each activity on the checklist (when appropriate) under the direct supervision of the preceptor. (If the student is unsure of the activity, the preceptor will demonstrate the skill.)
- Review each activity performed with the preceptor, and be sure the preceptor critiques his performance.
- Be sure the preceptor marks the checklist after each clinical session.
- Develop a log on each patient seen during the experience—the log should include the following information as a minimum:

  — Patient's record identification—use identification number rather than patient's name
  — Major problem—that is, trauma, acute appendicitis
  — Complications
  — Skills and activities observed
  — Skills performed—that is, initiated IV, monitored cardiac activity

The preceptor and the student should review the objectives in the instructional unit and discuss which activities will be included in the experience.

NOTES

CLINICAL TRAINING CHECKLIST

Emergency Department

Student's name _____

Completed	Activities (objectives)	Session number 1 O	1 T	1 S	2 O	2 T	2 S	3 O	3 T	3 S	4 O	4 T	4 S	5 O	5 T	5 S	Comments
	Perform patient assessment for musculoskeletal injuries																
	Assist in trauma cases: Hemorrhage control Immobilization of suspected fracture																
	Preceptor																
	Date																

Note.—O = observations; T = student attempts; S = successful attempts.

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